



STOPPING SMALL GULLIES

The size of the drainage area above a gully and land slope point to the type of structure best suited to control the gully.

There are several types of soil erosion, but none is more visible on the landscape than gully erosion. Gullies often begin in slight depressions where concentrated runoff water from heavy storms tears at the soil. They may also form as rapidly melting snow or ice runs off the land. Sediment from gully erosion fills farm ponds, road ditches, streams and lakes, and causes other problems downstream.

A variety of grade stabilization structures, in addition to farm ponds, can be built within gullies to control erosion. They reduce the grade, or slope of the gully channel, to slow the water and reduce its energy. Common structures include chute spillways, drop structures, pipe drop structures, and grassed waterways.

CHUTE SPILLWAY

Chute spillways are used to control overfalls or headcuts within channels or constructed waterways. They can also be used to safely move water from farm fields into the bottom of drainage ditches. Chute spillways can be constructed using various materials such as concrete, loose rock, geotextile, concrete blocks, or established sod.

DROP STRUCTURE (small dam)

The straight drop spillway is a dam that directs water flow through or over a designed opening, where the water drops to a nearly level apron or stilling basin and then passes into the downstream channel. The drop structure may be built with concrete, rock masonry, concrete blocks, metal sheet piling, or treated lumber. Besides controlling gully erosion, drop structures:

- Serve as outlets for tile and surface water along drainage ditches.
- Protect the outlet end of grassed waterways and sod chutes.

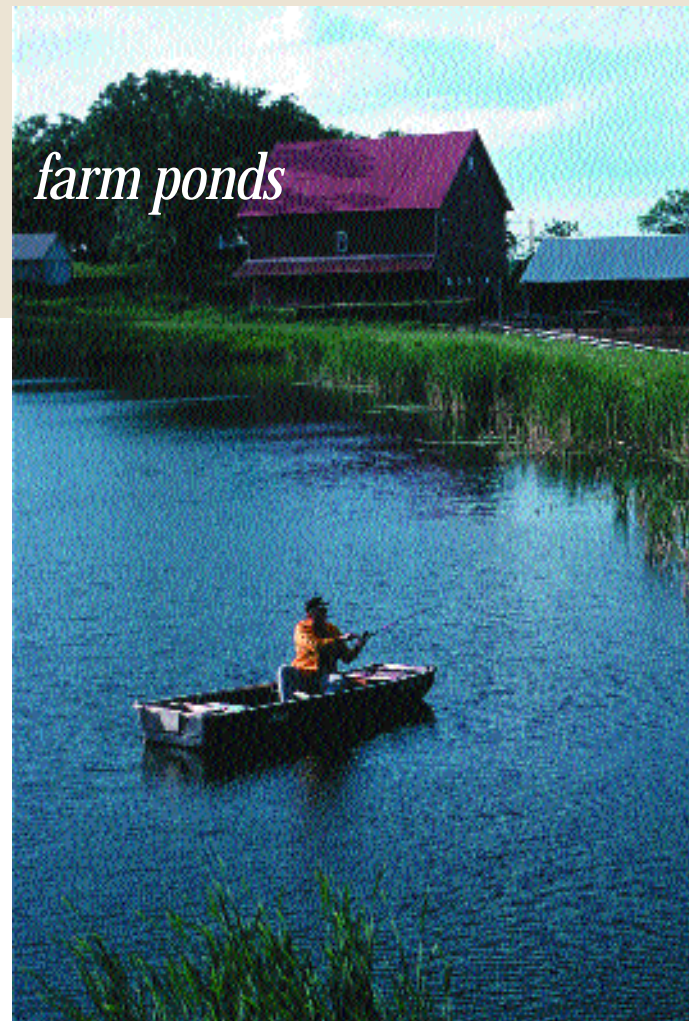
DROP STRUCTURE ADVANTAGES:

- Very stable, can withstand large flows without being damaged.
- Does not easily clog with floating debris.
- Lower maintenance costs than most other structures.
- Relatively easy to build.



A drop structure can be an effective option to help stabilize an eroding gully.

stabilize an eroding gully



farm ponds

Farm ponds help stop gully erosion while providing recreational opportunities and wildlife habitat.

slowing gully erosion

PIPE DROP STRUCTURE

A pipe drop structure is commonly an earthen dam built across a gully with a pipe that carries water from above the dam to an area below, without erosion. While pipe drop structures are often used to control gully erosion, they also are used to form farm ponds, and serve as outlets for settling basins and flood control structures.

PIPE DROP STRUCTURE ADVANTAGES:

- Adaptability for high drops.
- Uses less material than chutes or full-flow drop structures
- Lowers the peak flows downstream-but the pipe inlet clogs easily with debris.

FARM PONDS

A typical farm pond is formed by building a dam across an existing gully or low-lying area. This prevents soil erosion and protects water quality by collecting and storing runoff water. Farm ponds are most useful for livestock watering and recreation if they are adequately protected by other conservation measures which prevent sediment and nutrients from reaching the water supply.

FARM POND ADVANTAGES:

- Provides water for livestock, fish and wildlife.
- Provides recreation opportunities.
- Adds value and beauty to a farm or farmstead.

GRASSED WATERWAY

A grassed waterway is a natural or shaped channel, usually seeded to perennial grass. The waterway is designed to be wide and deep enough to safely carry storm runoff water down the channel on the grass rather than across bare soil. Grassed waterways are used where water concentrates and gully erosion is a problem. Grassed waterways can also be used to carry water downstream from diversions, terrace systems, road ditches or culverts.

GRASSED WATERWAY ADVANTAGES:

- Can be built with farm equipment.
- Reduces soil erosion, improves water quality.
- Increases wildlife habitat.
- Grass may be harvested from the waterway, but avoid disturbance during bird nesting season. Don't over graze or use the waterway as a road.

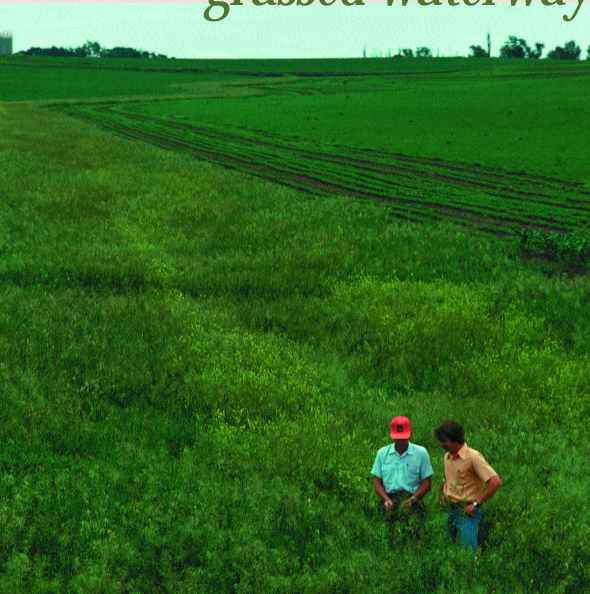
NOTE: Establishing and keeping a thick stand of grass in the waterway is critical to its success. Waterways with constant or prolonged water flows may need special treatments such as stone centers or subsurface drains to carry a portion of the flow, or grade stabilizing structures at the outlet end.



Wood is one of the material choices for relatively inexpensive drop structures that help solve small gully erosion problems.

While pipe drop structures are often used to control gully erosion, they also are used to form farm ponds, and serve as outlets for retention or settling basins and flood control structures.

grassed waterway



Maintenance of grassed waterways is important to preventing gully erosion.

add beauty and value



Farm ponds provide an excellent water source for livestock and prevent soil erosion.